Poster Title:

Selection of Biomarkers of Exposure for a Population Study of U.S. Adult Smokers to Cigarette Smoke

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In the evaluation of harm reduction by new cigarette designs, measurements of exposure to both the gas/vapor phase and particulate phase ("tar") of mainstream cigarette smoke are required. We have identified biomarkers based on known mainstream cigarette smoke chemistry. Selected biomarkers of gas/vapor phase smoke exposure are CO in exhaled breath, blood COHb, and acetonitrile in both exhaled breath and blood. Biomarkers of particulate phase smoke exposure are hemoglobin adducts of the aromatic amines 3- and 4-aminobiphenyl, 24 hour excretion of two urinary metabolites of the tobacco-specific nitrosamine, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK), and the sum total of six urinary metabolites of nicotine. A justification for the smoke constituents chosen for study, the criteria used to select the above biomarkers of cigarette smoke exposure, and the pilot study planned to evaluate these choices will be presented. (INBIFO is a Philip Morris research laboratory.)

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